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(58) **Field of Classification Search**

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See application file for complete search history.

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(57) **ABSTRACT**

Catheters and methods for supporting a guidewire or delivering a radiopaque, diagnostic or therapeutic agent through a vessel stenosis or other tortuous anatomy are disclosed. A catheter can comprise an elongate shaft body and a tip member disposed at a distal end of the shaft body. The shaft body can extend from a proximal end to the distal end and can define an inner lumen. The shaft body can include a liner, a braid member surrounding the liner, a multi-layer coil surrounding the braid member, and a polymer cover surrounding the multi-layer coil. The multi-layer coil can include first and second coil layers wound in opposing directions. An outer surface portion of the polymer cover can include one or more helical threads. In an example, the one or more helical threads are positioned around a distal end portion of the shaft body. The tip member can be made from a metal or a polymer and can also include one or more helical threads around its outer surface.

20 Claims, 6 Drawing Sheets

